Melbourne IGEM 2008: BioClock

Lloyd Low Wai Yee

January 11, 2008

Contents

1 Model002:context001

To avoid problem with cell state such as DNA replication that occurs in about 20mins per *E.coli* cell, a multicell approach may circumvent this problem. I design the context for this multicell approach in Figure 3. I just realized that we need a realtime reporter gene assay monitoring system.

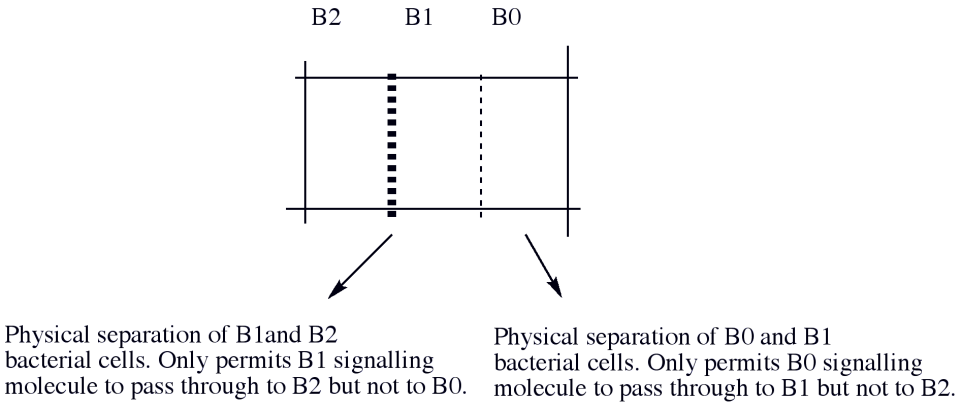

Figure 1: Model002:Context001. The idea here is to use physical separation to keep B0, B1 and B2 cells apart but allow transmission of signaling molecules. If we implement biobricks from IGEM2006 Imperial College (http://openwetware.org/wiki/BioSysBio:abstracts/2007/iGEM2006_Imperial_College) in B0 physical compartment, then we can get AHL molecules oscillation, assuming the system has now been perfected. Even in the absence of the Imperial College system, we can still make AHL concentration to go ON and OFF by the following. Add AHL - ON, add lactonase - OFF, heat inactivate lactonase, then add AHL signal ON, add lactonase to signal OFF, heat inactivate and the cycle repeats. Alternatively, we can supply AHL medium, remove AHL medium, and cycle the two steps to get ON and OFF cycle. This shall allow us to concentrate on working with B1 module, which is what I reckon to be the harder bit.